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ABSTRACT

This report examines taxonomies of reading comprehension subskills in light of a process-oriented model of text comprehension. Part One presents an outline of reading comprehension subskills in the context of a simple conceptual framework, summarizes the conclusions of several reading specialists and researchers as to what comprehension consists of, and draws an idealized picture of the instructional goals that should be addressed in classroom practice. Part Two discusses studies that investigated what skills are actually taught in the classroom, how the skills are sequenced, and the instructional methods typically used in classroom settings. The report concludes that although none of the techniques reviewed were particularly startling or novel, observational evidence suggests that they are too seldom used and that the systematic use of direct interactive strategies appears to offer the most immediate promise for bringing about significant improvements in reading comprehension instruction. (AEA)

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CLASSROOM PRACTICES IN READING COMPREHENSION

David Snow

ABSTRACT

This paper examines taxonomies of reading comprehension subskills in light of a process-oriented model of text comprehension. A synthesis of several approaches to reading provides an idealized, research-based framework for the goals of comprehension instruction during the elementary school years. This framework is used as a guide for evaluating current practices in teaching reading comprehension, including 1) the comprehension activities presented in nationally-used reading materials, and 2) the ways in which teachers typically use instructional materials in actual classroom settings.

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CLASSROOM PRACTICES IN READING COMPREHENSION

David Snow

Instruction in reading comprehension has been defined as any classroom activity designed to help children understand the meaning of text units larger than isolated words (Durkin, 1978). This definition distinguishes comprehension from reading skills which are primarily targeted to graphemic and lexical units of the text: decoding skills, word-attack, vocabulary. The present paper considers instructional practices in reading comprehension, that is, how children are taught to work out the meaning of text units at propositional and supra-propositional levels.

Durkin's definition of reading comprehension, which we adopt in the present review, commits us to consider issues related to the representation of meaning in discourse. A major issue, for both theory and applications, revolves around the problem of specifying the nature of the relationship between the text and its associated meaning. In one approach to this problem, meaning is said to be carried more or less directly by the text itself. This is a text-driven model of the relationship between text and meaning, which is implied by classic conceptualizations of reading as the "extraction of meaning from text" (e.g., Gibson & Levin, 1975). Alternatively, a process-oriented view assumes that meaning is cued indirectly by the text and must largely be constructed by the reader. Work stemming from a recent cognitive trend in reading comprehension research has favored this latter view by showing that discourse comprehension involves substantial cognitive contributions from the reader/listener. In this view, comprehension involves the reader's construction of an abstract semantic representation of the text content on the basis of cues provided by the text (Kintsch, 1974; Bransford, Barclay & Franks, 1972). This

constructive, semantic representation can be described as abstract and separate from the text, for two important reasons. First, it consists of propositional information that is independent of the form or exact wording of the text (Sachs, 1967, 1974). Secondly, and most important for our purposes, an adequate semantic representation of a text is elaborated and connected by inferences which the reader generates in order to achieve a coherent representation of the situations described. Thus the active process of comprehension leads to a psychological representation of the written material that contains much more information than was explicitly given by the text itself.

Most accounts of reading comprehension (such as those to be described in this review) recognize the duality that has been described above in terms of text-driven versus process-oriented comprehension. Thus models of reading comprehension generally contain components relevant to both of these views of reading comprehension. A basic idea to be presented in the following discussion is that comprehension is largely an inferential process; that is, it is basically a "thinking activity" (Herber, 1978). Therefore, in order to evaluate instructional effectiveness, it is important to make careful distinctions among reading comprehension tasks as to the type of cognitive process (or reader contribution) that is implied.

The relation of the text and its associated meaning is a central issue in Part I of this paper which considers the nature of reading comprehension more fully. The purpose of Part I is to sketch an outline of reading comprehension subskills and to present them in the context of a simple conceptual framework. This sketch summarizes the conclusions of several reading specialists and researchers as to what comprehension

consists of and thereby gives an idealized picture of the instructional goals which should be addressed in classroom practice. In Part II, we consider studies investigating what skills are actually taught, how they are sequenced, and the instructional methods typically used in classroom settings.

Part I

Subskills of Reading Comprehension

Research in children's academic achievement (Fiege-Kollmann, 1978) has shown that children do indeed learn from the instruction they have received. The critical factors underlying student achievement appear to be the content and emphasis of the curriculum they are taught (e.g., Berliner & Rosenshine, 1976). Since achievement is contingent on what is taught, it is important to specify clearly what type of comprehension instruction children typically receive, and most importantly, what the ideal skill targets of instruction should be. This section investigates the question of ideal instructional targets by reviewing some of the conceptualizations of skill domains in reading comprehension that are presented by educators and reading researchers. We begin by looking at two taxonomies of the components of comprehension.

Rosenshine (1977) surveyed the recommendations of several reading specialists and curriculum developers concerning the subskills of reading comprehension that are important for instruction. Eight skills are identified by Rosenshine as the ones most frequently noted in his survey. These skills, which are listed below, represent a consensus of reading specialists about the essential components of reading comprehension.

1. understanding words in context
2. locating details in the text
3. recognizing the sequence of events
4. making inferences (1)
5. recognizing cause and effect relationships
6. making predictions and conclusions
7. comparing and contrasting
8. recognizing the main idea, topic, or best title.

In addition to mentioning the above skills, some respondents in Rosenshine's survey included skills in 1) differentiating between fact and opinion, and 2) recognizing the author's purpose, tone, or mood.

This taxonomy may be compared with Barrett's (1976) categorization of reading comprehension skills, which is widely used as a standard in the area of reading instruction. Barrett lists skills under four major headings (literal recognition/recall, inference, evaluation, and appreciation) which define a set of basic skill types. A brief outline of the taxonomy is presented below.

1. Literal recognition or recall. This refers to comprehension of information explicitly stated in the text, including details, main ideas, sequence, comparisons, cause-effect relations, character traits.
2. Inference. Comprehension at this level occurs when the reader synthesizes literal content with his own knowledge or intuition in order to make conjectures and hypotheses about the text statements. It includes all aspects under (1) above plus predicting outcomes and inferring content from figurative language.
3. Evaluation. This requires the reader to make judgments about the content of reading material, that is, to distinguish between reality and fantasy, or fact and opinion, and to make judgments of text adequacy, appropriateness, worth, and so on.
4. Appreciation. This refers to the reader's awareness of the literary techniques and language used by the author to create emotional responses in the reader.

The useful feature of Barrett's categories is that they provide some superordinate categories which define a set of generalized skills, or levels of comprehension. These larger categories are differentiated from one another according to the amount and type of information that the reader must supply independently (versus information given by the text). For example, comprehension at the first level (literal recognition and recall) is guided mostly by the text. A question that can be answered by statements in the text would be categorized as measuring this literal level of comprehension. The category of "inference," on the other hand, entails the use of the reader's own world knowledge to interpret and go beyond the literal level statements. Answers to questions at this level of comprehension cannot be answered by any explicit information in the text, but must be derived from the reader's knowledge of real world events.

The distinction between literal and inferential comprehension is basic to the sketch being developed here. In the next section, we continue this inquiry by examining empirical evidence for relationships among comprehension skills. We use this evidence specifically to evaluate and redefine the notion of literal versus inferential comprehension.

Relationships Among Comprehension Skills

In this section we further explore the problem of arranging the subskills of comprehension in a framework that specifies distinct types of comprehension activity on the part of the reader. The major question to be addressed is: Are the subskills of reading comprehension separate skills or interrelated aspects of more global skills? Answers to this question will be used to evaluate the usefulness of Barrett's (1976) distinction between literal and inferential comprehension.

In an effort to determine empirical distinctions between comprehension subskills, Rosenshine (1977) reviewed several correlational studies of the skills investigated by Davis (1968, 1972), which are roughly those given on list (1). These studies, together with the results of reanalyses by Thorndike (1973) and Spearritt (1972), generally indicate that comprehension subskills are not identifiable as separate skills. The one clear exception to this general conclusion is vocabulary skills (understanding words in context) which emerged most clearly as a separate skill in all three studies. This finding is consistent with Durkin's (1978) definition of reading comprehension as skill in working out the meaning of units larger than a word. Since vocabulary is the one skill on the list which is primarily at the single word level, it is reasonable that it would be differentiated from true comprehension skills which address larger units of the text: sentences, paragraphs, and entire passages.

Rosenshine's review does not indicate any other clear-cut distinctions between skills that were consistently found by all investigators. The most promising distinction was a generalized difference between (1) understanding explicit material in the text, and (2) making inferences. In regard to the taxonomy listed in (1) on page 4, this means that there is a distinction between "locating detail" explicitly stated in the text and all of the other comprehension skills. Rosenshine did not find any evidence that these inferential skills are ordered in a hierarchical learning sequence. Rather, they appear to be inter-related aspects of a single, global, verbal reasoning skill. The "explicit:implicit" dichotomy suggested by correlation studies corresponds to Carver's (1973) useful distinction between <u>reading</u> and <u>reasoning</u>. "Reading" involves decoding, word recognition skills, and

understanding explicit sentence-level relations. "Reasoning" refers to the reader's ability to combine meanings across sentences, including inferences and conclusions. Thus, putting together the definitions we have considered to this point, we can say that reading comprehension encompasses some "reading" skills (understanding explicit sentence level relations) plus verbal reasoning, which refers to understanding implicit meanings across sentences. It is apparant that most of the skills used to define and assess comprehension measure verbal reasoning, or "inferential comprehension."

However, it was pointed out above that the distinction between reading (explicit information) and reasoning (implicit information) was inconsistently observed. Rosenshine (1977) points out that part of the explanation for this inconsistency is that the tasks (i.e., questions) used to measure particular skills are subject to widely differing interpretations. A case-in-point has to do with the difference between "locating details" (explicit or literal comprehension) and "making inferences" (implicit comprehension). In some reading taxonomies (e.g., Barrett, 1976), a task is defined as measuring literal comprehension if the target response can be found in the text at all, that is, if the response is text-based. This definition does not take into account the fact that many text-based comprehension tasks involve substantial cognitive contribution of the reader. To illustrate the potential complexity of task-skill relationships, Rosenshine cites the following excerpt of discourse:

(2) Mary read three books last summer. Johnny said, "I wish I could do as well."

Three types of comprehension questions about this short excerpt are shown below:

(3) How many books did Mary read?

(4) How many books did Mary finish?

(5) Who read more books, Mary or Johnny?

All of these questions would be considered examples of detail explicit comprehension because the answers are all derivable from the text and do not require the reader to use extensive world knowledge. However, only question (3) is clearly a detail, explicit question. A slightly paraphrased question such as (4) introduces more difficulty to the task (the semantic entailments of the verb read in this context must be processed). The task is even more complex with question (5), which requires an integration of information across more than one sentence, that is, construction of information that was not explicitly stated in the text. Thus, nominal labels for skills may not always account for the actual processes involved in particular comprehension tasks (Rosenshine, 1977). The following section considers literal versus inferential comprehension with the goal of distinguishing between the processes involved in responding to question types (3), (4), and (5) above.

Comprehension Processes

The question of "process" in reading comprehension raises an important issue which is dealt with extensively by Pearson and Johnson (1978). Their analysis of reading comprehension tasks (that is, questions) takes into account the process of comprehension required by the task. They do this by considering the three-way relationship existing between the question, the response, and the text. This goes beyond most taxonomies of skills that we have discussed (which classify only the type of information targeted

by a particular question, e.g., the main idea) by describing the source of knowledge that the reader must use to establish a connection between questions, answers, and the text. The three types of questions are as follows:

- Textually explicit: The answers are "right there" in the text, and there is a one-to-one relationship between the wording of the question and the text which answers it (e.g., question 3).
- Textually implicit: Answers are also in the text (or derivable from the text), but the reader must use a text-based inference in order to construct them.
- "Scriptally" implicit: Answers to these questions require further contributions from the reader in terms of his/her knowledge and personal experience. That is, the data base for answering these questions is the reader's own script (Schank, 1973) for the realm of experience involved in the text (not the text itself).

An example given by Pearson and Johnson illustrates these three levels, using the following short discourse:

> Right after the Civil War, many distraught soldiers made their way West to find fame and fortune. Some could not go home because there were no homes to go to. The war had devastated them. One young man, Will Goodlad, made his fortune in the hills of Colorado. He found gold in a little river near Grand Junction. His fortune was short-lived, however. In 1875, he declared bankruptcy and returned to the land of his birth--the Piedmont of South Carolina.

Some questions and answers about the text are given below, illustrating each type of question in the taxonomy.

(6) Where did Will discover gold?

(6a) In a little river near Grand Junction.

(6b) In the hills of Colorado.

(7) Why couldn't some of the soldiers go home?

(7a) There were no homes to go to.

(7b) The war had devastated their homes.

(8) For what side did Will fight during the war? (The South)

Question and answer pairs (6)-(6a) and (7)-(7a) exemplify textually explicit comprehension: The answers are right in the text. Answers (6b) and (7b), however, are quite different. Although they are based on the text, they require the reader to independently make a logical connection between literal statements. Thus they are examples of textually implicit comprehension. The question-answer relation shown in (8) is an example of scriptally implicit comprehension: the answer is derivable from the reader's knowledge (script) of the situations described, but not from the text.

These examples distinguish between literal and inferential comprehension on the basis of whether or not the reader must connect or elaborate literal statements. This distinction is opposed to the traditional wisdom of reading taxonomies (e.g., Barrett, 1976) which holds that <u>any</u> answer based on the text represents literal comprehension. A case-in-point is the ability to recognize main ideas in a passage such as the following cited by Pearson and Johnson.

> Robins build nests in trees. Pheasants build nests in bushes. Eagles build nests in rocks. Birds build nests in a variety of places.

Although the main idea of the short paragraph is given in the last sentence, and would therefore be considered literal comprehension in Barrett's taxonomy, the reader still must recognize that it is in fact the main idea. Since this requires an inference (it is not explicity stated in the text), the task cannot be considered one of literal comprehension.

Similarly, Pearson and Johnson point out that many other tasks such as recognizing the sequence of events, making comparisons, or identifying cause and effect relationships are usually cued only implicitly in a text. For example, the question cited by Rosenshine (1977) in (5) calls for making a comparison which is stated implicitly in the text; thus it would be categorized as inferential even though the target answer is derivable from the text.

The distinction between explicit and implicit comprehension proposed by Pearson and Johnson (1978) appears to correspond well to empirical evidence suggesting a basic distinction between "reading" and "verbal reasoning" (Rosenshine, 1977). We therefore use these organizing categories in Table 1 (see p. 16), which summarizes the comprehension skills (and process distinctions) that have been discussed. We next consider a further refinement of the notion of literal comprehension in order to describe the comprehension process associated with paraphrased questions such as (4).

Semantic Processing

A special case of tasks representing literal level comprehension are those in which questions about the text are derived from paraphrases of the original wording in the form of synonym substitutions. Examples include question (4) previously cited from Rosenshine (1977), and the following example taken from the protocols used by Anderson (1971) in a cloze format:

(9) Text: . . . The traveler appreciated the gift.

(10) Question: The _____ was grateful for the present.

Paraphrased questions such as (10) are sentence-level tasks not requiring inferences in the sense discussed above. However, they also differ from verbatim questions which can be answered on the basis of a superficial processing of the text, that is, "phonological encoding" (Anderson, 1972) or a surface representation of the text (Kintsch, 1974). Paraphrased questions relate to the text only on the level of semantic (propositional) representation, but not on the surface level. Thus answers to these questions require a deep semantic processing of the text, that is, reading for meaning. Experimental studies using verbatim and paraphrased comprehension question (Anderson, 1972, Bormuth, Carr, Manning, & Pearson, 1970; Caccamise and Kintsch, 1978) support the conclusion that meaning--the goal of comprehension--is represented psychologically by the reader in a form that is independent from the surface form (the original wording) of the text. Verbatim questions relate directly to the surface form of the text and indirectly to the deep semantic representation. They can be answered either 1) on the basis of the meaning of the text, or 2) by rotely matching lexical elements of the question with the text. Paraphrased questions, on the other hand, relate to the text only on the propositional level of representation. They can only be answered by processing the text on a semantic level, that is, via comprehension.

In order to suggest the process distinction between surface and propositional representations of passages, we divide the category of textually explicit comprehension skills into two sub-groups: (a) tasks with a verbatim relationship between question, text, and response, and (b) paraphrased questions in which there is a one-to-one relationship between the question and the text only on the propositional level.

In the above discussion, we have made several distinctions between comprehension tasks on the basis of the comprehension process, or "level of processing" (Craik & Lockhart, 1972), that they minimally require from the reader. These ordered relationships between tasks and processes are summarized below:

Task Category	Minimum Level of Processing
1. Textually explicit	
a. verbatim	I. surface representation
b. paraphrased	II. propositional representation
2. Textually implict	III. logical (text-based) inferences
3. Scriptally implicit	IV. experience-based inferences

The schema above shows the most superficial level of processing which is necessary to respond to each type of task. Verbatim questions, for example, can be answered on the basis of information obtained from any one of the levels. Textually implicit questions can be answered via information inferred from levels III or IV but not from information at levels I and II.

Table 1 shows a summary of the tasks and process categories that have been discussed. The table shows four major categories. The first two capture the distinction between literal and inferential comprehension as defined by Pearson and Johnson (1978). The table does not separate textually and scriptally implicit comprehension, since this distinction is not always well-defined ; moreover, its significance for reading performance has not been studied. Categories 3 and 4 of the skill table, based on Barrett (1976), are more difficult to categorize in terms of

the comprehension processes involved. Tasks related to "Making Judgments" and "Appreciation" appear to require substantially greater intuitive and affective responses to the text by the reader than those in category 2, because the target responses are neither explicitly stated nor overtly cued by the text. Thus, the processes associated with these skills are probably even more complex than those discussed in this paper.

The skills listed under categories 1 and 2, which are mentioned in all three sources reviewed earlier (Rosenshine, 1977; Barrett, 1976; Pearson & Johnson, 1978), constitute a core group of basic skills in reading comprehension. Since this set of skills represents a consensus among reading specialists as to the essential content of comprehension instruction, we focus particularly on this group in Part II, which considers the manner in which these skills are taught in actual classroom practice. Some subskills such as "causal relations" are represented both in categories 1 and 2. This is because these tasks may require minimally either explicit or implicit comprehension depending on whether or not the text makes causal or temporal relations explicit by means of words like <u>because</u>, <u>then</u>, <u>after</u>, etc. In accordance with the conclusions of this review, the table shows that most reading comprehension skills refer generally to verbal reasoning; that is, the reader's ability to elaborate the text with information that was not given explicitly. The essential goal of comprehension instruction, therefore, is to help children develop an awareness of reading as a "thinking activity." The question of how this instruction is carried out is a topic we turn to next.

Table 1. Reading Comprehension Skills

- Basic Skills
  - Reading
    - 1. Textually Explicit Comprehension
      - A. locating details (literal wh- questions or cloze tasks)
        - causal relations
        - sequence of events
      - B. paraphrased questions
  - Verbal Reasoning
    - 2. Textually/Scriptally Implicit Comprehension
      - inferences
      - comparison
      - causal relations
      - sequence of events
      - main idea - supporting details
      - conclusions
      - outcomes
      - figurative language
    - 3. Making Judgments
      - fact/opinion
      - reality/fantasy
      - evaluating bias
    - 4. Appreciation
      - mood/setting
      - author's purpose, tone, mood.

Part II

Comprehension Skills and Classroom Instruction

Part I provided an overview of the idealized content of reading comprehension instruction. It addressed the question, what are the skills to be taught? Part II addresses the question of how these skills are taught in schools. The most complete study of instructional practices would entail a description of the content of reading curriculum materials (basal readers, workbooks, etc.) as well as an account of the ways in which teachers actually use these materials in classrooms. However, this ideal type of observational study has not been carried out. Instead, studies of classroom instruction in reading comprehension tend to focus either on the content of materials or on the teacher's allocation of time to general activities such as instruction per se, assessment, written assignments, etc. However, by looking at these various approaches and piecing together the insights derived from each of them, we can obtain a relatively good, if sketchy, picture of classroom practices in reading comprehension.

Using a classroom observation technique, Durkin (1978) studied how time was spent in elementary school activities (grades 3 through 6) devoted to reading and to social studies. The purpose of Durkin's study was to determine how much time was spent on comprehension instruction. This was defined as "Teacher does/says something to help children understand or work out the meaning of more than a single, isolated word" (p. 488). Since there is a close association between comprehension instruction and question-asking, Durkin carefully distinguished between instruction and assessment. Classroom activities were described as assessment if

questions were asked only for the purpose of determining if the children were right or wrong. In contrast, activities were classified as instructional whenever question-and-answer interactions helped students to understand the material better by 1) asking the children to show why they thought an answer was appropriate, 2) modeling better answers, or 3) discussing alternative responses. Another important category that Durkin distinguished from instruction was the time spent on helping children with written assignments.[1] In this activity, teachers assisted children with the mechanics of an assignment, rather than guiding their thinking processes about the text.

Durkin's observations showed that very little time is spent in actual comprehension instruction. For example, in observations of fourth grade classrooms during the reading period, less than one percent of the time was spent on comprehension instruction. Except for activities classified as "transition" and "non-instruction", the largest amounts of time were spent on assessment (through questions) and on written assignments. Teachers relied on teachers' manuals mainly for identifying new vocabulary and for assessment question to be asked after reading. Written assignments used workbooks and ditto sheets (auxiliary to the textbook being used). The predominance of workbooks and similar assignment sheets was especially striking in Durkin's study and in the reports of other observers (e.g., Goodlad and Klein, 1970). Whereas workbooks are generally intended for practice, it was apparent that they were being used virtually as a surrogate for instruction.

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[1]Some researchers have defined comprehension instruction so as to include a wide range of classroom activities such as "assessment" and "help with assignments" (Hodges, 1980). Analyses using this broader definition of instruction lead to quite different results from those reported by Durkin.

The general picture that emerges from Durkin's study is that comprehension is not taught per se; rather, children are given the opportunity to learn comprehension skills by themselves through the experience of responding to questions and completing various written assignments about the text. This impression is corroborated in SWRL studies correlating the content of basal reading series and children's reading skills. Commenting on the relatively low scores for comprehension that were observed in tryouts of the Proficiency Verification Systems in Reading (PVS), Fiege-Kollmann (1978) remarked:

> In queries about story meaning, children have received practice since they first began their reading lessons, but they seldom receive instruction in how to extract information out of a story, and consequently, the children are mainly self-taught through practice. The relatively low performance level tells as much about reading practices as it tells about proficiency in these skills.

Since the substance and direction of reading comprehension instruction is largely carried by the textbooks and especially by the workbooks that children use in the schools, an analysis of the content and sequencing of workbook exercises should provide insights into the type of instruction (or practice) children typically receive. We turn next to some studies which have analyzed the content and goals of the reading series used most widely in the schools.

Reading Materials

Armbruster, Stevens, & Rosenshine (1977) compared the content of three nationally used reading programs (Ginn, Economy, and Houghton-Mifflin), focusing on exercises for reading comprehension in curricula designed for the upper half of the third grade. Using a set of scoring

categories for types of comprehension exercises that include the majority of the categories described in Table 1 of this paper, their analysis showed that the three curricula did not correlate very well in emphasis. The results are summarized below under major categories of comprehension as formulated in Table 1. The data indicate the percent of comprehension exercises accounted for by each comprehension category, showing the highest and lowest percentage across the five programs examined in this study.

Comprehension Category	Proportion of Exercises	
	Lowest	Highest
1. Understanding words in context	1	36
2. Textually explicit	34	65
a. Literal	28	57
b. Paraphrased	6	10
3. Textually/scriptally implicit	34	65

The large ranges in these data show that there exists a good deal of variability in emphasis between programs (hence, a lack of high inter-program correlation). The data also indicate that the percentage range of exercises addressing textually explicit tasks is the same as the range for implicit comprehension tasks (34% to 65%). Thus, on the whole these two major areas are treated about equally. However, the majority of questions for textually explicit tasks are literal questions, reflecting the large number of verbatim cloze questions, whereas the implicit questions cannot be verbatim, by definition. Since the verbatim, explicit type of task does not necessarily measure or encourage a complete semantic processing of the text, an unexpectedly high proportion of the comprehension

activities cannot be judged to facilitate the development of higher-level comprehension skills. On the other hand, the data do show that reading curricula also provide children with practice in comprehension at the inferential level. Within the category of implicit comprehension, the exercises tend to be scattered unevenly among the various types of tasks without a particular emphasis on any specific task. Since it is not known if the sub-tasks of comprehension generalize to one another (Rosenshine, 1977), the instructional consequences of this strategy (that is, giving a little bit of practice across a lot of inferential tasks) cannot be fully assessed.

The question of sequencing in basal reading series was studied more extensively by Rosenshine (1977), who inspected five major curricula in order to determine if comprehension was taught by means of a systematic schedule for introducing and practicing specific subskills. The content for the first three semesters of the following curricula was inspected:

Ginn: Reading 360
Harper and Row: Design for Reading
Lippincott: Basic Reading 1975
Scott Foresman: Reading Unlimited
Webster/McGraw-Hill: Programmed Reading

Rosenshine restricted the study to eight categories of comprehension exercises, which are listed below:

- Understanding words in context
- Locating details
- Making inferences from the text
- Recognizing the sequence of events
- Recognizing cause/effect relationships

- Recognizing the main idea
- Drawing conclusions
- Making interpretations (judgments and generalizations)

A review of the selected curricula indicated that the skills were treated in virtually all of the curricula examined. Most skills were introduced very early (in the first semester of the first grade); the skill most likely to be slightly delayed was "recognizing the main idea," which was usually deferred until the second semester of the first year. Generally, all skills were introduced at least by the second semester. Thus there was no attempt on the whole to sequence the skills in any particular way, or to teach them in a hierarchical manner: once skills were introduced they were studied continually throughout the elementary school years. The lack of systematic sequencing was also suggested by some of the unexpected exceptions to the general pattern of introducing all skills early on. For example, inferential skills were sometimes introduced before excercises aimed at word-level skills (understanding words in context) and literal comprehension (locating details).

The problem of sequence is further complicated by the fact that curricula (and studies about them) do not tend to make rigorous distinctions between "literal" and "inferential" tasks such as discussed in Part I of this paper. The category that is intended to represent literal comprehension (extracting factual information from text) appears to represent a wide range of tasks entailing 1) inferences across explicit statements, 2) interpretations of anaphora, 3) generalizations of ideas, and 4) recognition of a paraphrase relation between question and text. Thus

the actual processes required for these tasks are not clear, further strengthening the impression that comprehension skills are not typically taught in a sequenced manner.

A much more comprehensive survey of instructional materials is given in SWRL's Reading Skills Profile (Fiege-Kollmann, 1979), which summarizes the skills content of eight widely-used reading programs for grades one to six. The Skills Profile for Reading Comprehension complements and extends the findings reported by Rosenshine (1977). It shows that the skills presented in Table 1 (plus an additional set of "literary skills") are all addressed in reading materials. In particular, the skills we have identified as "Basic Skills" in comprehension are all well represented in most curricula. However, considerable variability was found for materials for grades one and two as to when these skills are introduced, contrary to Rosenshine's finding that all skills tended to be introduced very early. This type of variability again suggests the lack of a consistent sequence for practicing comprehension skills. However, in spite of variation in the scheduling of practice exercises, most programs emphasize all of the "basic skills" by at least third grade.

The Skills Profile shows additionally that comprehension practice tends to be structured around three skills which are introduced in some programs already in first grade and are emphasized throughout the elementary school reading curriculum. These are (1) locating factual details (emphasized in grades 2 to 6), (2) cause-effect relations (emphasized in grades 3 to 6), and (3) recognizing the main idea (emphasized in grades 2 to 5). Practice in formulating the main idea deserves special note, for two reasons.

First, it is certainly one of the mainstays of comprehension instruction: in some form, it is part of comprehension instruction throughout the elementary school years. Second, the task analysis of this area is particularly complex, encompassing a number of subtasks and variants (provide title, identify topic, formulate main idea) which are differentially stressed by grade level. In grades 1 to 3, for example, the tasks tend to focus on titles and topics, whereas practice in formulating the main idea is emphasized more in the middle grades. These latter skills are maintained through continuing practice in the upper elementary grades, and at grade six they are supplemented by practice in outlining skills.

Conclusions

Although program variability permits few generalizations, it seems reasonably clear that relatively early in the course of schooling children receive experience, if not instruction, in dealing with some facets of text comprehension. Two broadly defined categories of tasks characterize this practice, since they are present in some form in reading materials at all grades. These are "extraction of factual information" and "recognizing the main idea." Practice with text comprehension is thus an integral part of reading activity even in the early grades. Exercises in reading materials could probably be improved if they were presented in a more reasonable sequence. Task requirements would be easier to teach and learn if exercises were sequenced in a step-by-step approach based on the levels of processing framework discussed in Part I.

The most serious shortcoming of classroom practices in reading comprehension instruction does not have as much to do with materials as it does with the ways in which these materials are typically used. Comprehension training often takes the form of giving children tasks to complete (questions and assignments) rather than explicit instruction in how to understand the text. This appears to be a consensus of the various studies that have been considered here, whether they focus on reading materials and workbooks (Rosenshine, 1977) or on teacher activities in the classroom (Durkin, 1978). This conclusion is also corroborated by Fiege-Kollmann (1979), who comments on the manner in which comprehension skills are taught in the extensive sampling of reading materials which she studied: "Children are not instructed so much as they are given an opportunity to practice . . ., especially in the area of comprehension." (p. 7). This is unfortunate, especially in an area of learning whose complexity is suggested by equating it, as we have done, with "verbal reasoning." A number of classroom techniques for teaching (rather than practicing) comprehension skills have been described by Durkin (1978-79), Pearson and Johnson (1978), Herber (1978), and others. These include:

- modeling
- discussing reasons and evidence in support of children's responses to comprehension questions
- comparing and analyzing alternative responses
- encouraging children to get a "mental picture" of the situation described by the text

- conducting pre-reading sessions designed to explore what the children know (and what they don't yet know) about the topic. The purpose is to create a context and purpose for reading.

None of these techniques is particularly startling or novel; yet observational evidence suggests they are too seldom used. The systematic use of direct interactive strategies such as the above appears to offer the most immediate promise for bringing about significant improvements in reading comprehension instruction.

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